



85413AEK
Customer No. 01333

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Bradley M. Houghtaling, et al

OPTICAL FILM FOR DISPLAY
DEVICES

Serial No. 10/690,123

Filed 21 October 2003

Commissioner for Patents
P.O. Box 1450
Alexandria, VA. 22313-1450

Sir:

Group Art Unit: 1773

Examiner: Monique R. Jackson

I hereby certify that this correspondence is being deposited today with the
United States Postal Service as first class mail in an envelope addressed to
Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Deidra L. Mack
Deidra L. Mack

June 6, 2006
Date

DECLARATION UNDER RULE 131

The undersigned declares that:

She holds the degrees of M.Sc. in Chemistry from the Indian Institute of
Technology, Chennai, India; Ph.D. in Chemistry from The Ohio State University,
Columbus, Ohio; and engaged in Post Doctoral Research at Columbia University,
New York N.Y.;

She is a Senior Research Scientist with Eastman Kodak and has been
employed for over 25 years in research concerning coating processes, including
light management films and display technology such as wide angle viewing,
antiglare and antireflection coatings;

She is a coinventor in the present application;

She is now and has been, since the date of the present invention, an
employee of the Eastman Kodak Company.

In accordance with Kodak's established intellectual property procedures
for tracking inventions, her co-inventor, Bradley Houghtaling, submitted the

present invention as an "Idea Submission" to the Invention Tracker System on or before October 17, 2002, Identified as Exhibit I;

The date of the submission is accurate and has not been altered but has been redacted for confidentiality in this and the other Exhibits;

The terms in the Exhibits such as Orgasol, Claytone HT, CN968, Irgacure 907 etc. are as described in the Examples of the present application;

The title of the submission was "Antiglare element containing UV cured acrylate binder and nanoclay particles for use in LCD";

The "Summary of the Invention" near the bottom of the page describes an LCD and coating dispersion of the invention.

Exhibit II, kept in the normal course of research, dated prior to October 17, 2002, describes Antiglare studies employing certain specific dispersion formulas A and B.

Exhibit III, kept in the normal course of research, dated and witnessed prior to October 17, 2002 describes the program for antiglare hardcoats for LCD displays.

Exhibits IV and V, kept in the normal course of research, dated and witnessed prior to October 17, 2002, describe the use of the dispersions of Exhibit II and the formulas for the coatings to be tested as antiglare coatings.

Exhibit VI, kept in the normal course of research, dated prior to October 17, 2002 and witnessed after that date, describes the results and shows the antiglare properties of the film.

The foregoing Exhibits demonstrate that the concept of the invention occurred prior to the date of the reference and that the invention was actually reduced to practice prior to the date of the reference.

The undersigned declares further that all statements made herein of the undersigned's own knowledge are true and all statements made on information and belief are believed to be true. These statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.


Mridula Nair

Date: June 5, 2006

Encl: Exhibits I through VI

Exhibit I

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Eastman Kodak Company Restricted
Prepared For Patent Attorney

Status	Idea #	Docket #	Submitting Inventor	Title
Step 3 - Patent Legal Staff	OFP-1158	85413	B M. Houghtaling	Antiglare element containing UV cured acrylate binder and nanoclay particles for use in LCD

✓ - denotes a required field

Step 1 - Inventor : Idea Submission

✓ Technology Cluster/Portfolio #: 10 - Hardcopy & Display

✓ IP Coordinator: OFP - Charles Anderson - Optical Film Platform

Idea #: OFP-1158

Idea Entry Date:

Title: Antiglare element containing UV cured acrylate binder and nanoclay particles for use in LCD

PPID or EWO #: (Charge #. i.e. 094-EWO-0764-07149)

✓ Submitting Inventor: B M. Houghtaling/622045/EKC

Submitting Inventors Division: MRE

Division Code: GCB

Other Kodak Inventors: YuanQiao Rao/454150/EKC, Robert J. Kress/587361/EKC, Mridula Nair/118096/EKC, Tamara K. Jones/433933/EKC

Other Inventors:

Is this idea entry originating in ☐ Yes ☒ No
Europe?:

Are any inventors on this Idea ☐ Yes ☐ No
Non-US Citizens:

✓ Earliest Date of Invention: (a)

Notebook No./Page No./Other: BB9669-166

Other (e.g., Technical Reports, Memos, Make Sheets, etc.)
Lotus notes

Summary of Invention: The use of controlled aggregated nanoclay particles in a UV cured binder provides an antiglare functionality to the surface of a LCD panel that provides excellent antiglare features, excellent light transmission, minimal haze, excellent scratch and abrasion resistance.

Advantages: stable material, easy to coat

BB9669-166

Date:**Title:** Antiglare Studies**Purpose:** prepare the following dispersions so they maybe evaluated as possible hard coat additive candidates**Materials:** Southern Clay Products Claytone HT
Toluene
Methanol**Formulas:** 50 gram batches
solids: 2.5% and 5%
50/50 solvent blend of Toluene / Methanol

	<u>A</u>	<u>B</u>
Toluene	24.40	23.75
Claytone HT	1.25	2.50
Methanol	24.40	23.75
total	50.05	50.00

Procedure added components in order listed
weighed out Toluene and began mixing using magnetic stirrers
slowly added clay and continued to mix till totally dispersed
while still mixing added Methanol and allowed to mix overnight

note due to high viscosity of Toluene / Clay dispersion, next time
formula should be mixed with lightnin mixer to improve mix

Disposition: both formulas were supplied to Mridula Nair for possible incorporation into
hard coat formula

Date

Problem:

Results from LCD Anti-glare hardcoat.
The CN 968 can itself be now cured
in the UVA using Irgacure 907. ~~It~~
gives 4H Pencil hardness - A sensitizer
such as benzoxanthone will help the
efficiency. The spherical Aln based
particles from Innis all seem to come
off in the chg + raise the haze. To
move the samples off the glass/haze panel.
The nylon looks very good for glass/haze
and pencil hardness. Exp 166 may
need to be repeated since Roland left
it for too long before chg and so solvent
evaporation led to reproducibility from
older experiments to be off. Also try
a 2 iminator system with 2907
such as 2369 to improve cure
within the coating

Signature

M. J. Han

The foregoing disclosed to me on

Robert J. McLeod

Witness

RESEARCH / DEVELOPMENT

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Exhibit IV

Notebook No. CC0019

Date..

Problem:

BB9669-166

Date:Title:

Antiglare Studies

Purpose:

prepare the following dispersions so they maybe evaluated as possible hard coat additive candidates

Materials:Southern Clay Products Claytone HT
Toluene
MethanolFormulas:50 gram batches
solids: 2.5% and 5%
50/50 solvent blend of Toluene / Methanol

Descriptive

of clay

used for

experiments

on p. 24

Bob Kres

prepared

A

B

Toluene	24.40	23.75
Claytone HT	1.25	2.50
Methanol	24.40	23.75
total	50.05	50.00

Procedureadded components in order listed
weighed out Toluene and began mixing using magnetic stirrers
slowly added clay and continued to mix till totally dispersed.
while still mixing added Methanol and allowed to mix overnight

note

due to high viscosity of Toluene / Clay dispersion, next time
formula should be mixed with lightnin mixer to improve mixDisposition: both formulas were supplied to Mridula Nair for possible incorporation into
hard coat formulaThese are low because the coating solvent contains a lot of toluene which will cause mixing with acetate
and will compromise hardness/abrasion resistance. We have seen this before with coatings not containing
clay.
MridulaIt took me a while to find the clay samples, and I have been tied up with a DryView production
crisis in White City. I hope things settle down soon. I'm looking forward to having a weekend!! Anyway,
here are the pencil hardness results. Sorry for the delay. Let me know if you have any questions.CC0019-24A: ~2H
CC0019-24B: 2H

Joe

KP 15226-6/00

Signature

Tamara K. Jones

Witness

Margaret Kelley

The foregoing disclosed to me on

EASTMAN KODAK COMPANY

Date

Problem:

Clay Antiglare Coatings

Purpose Disperse clay solution in CN 968 and Coa for antiglare coating.

Formula:

(A) BB 9669-165-B

25g 5% HT in 50/50 Tol/MedH₂

12.5g CN 968

0.25g Irgacure 184

(B)

BB 9669-165-A

25g 2.5% HT in 50/50 Tol

6.25g CN 968

0.13g Irgacure 184

1 mil knife

2 mil knife

Coating Conditions

Block warmed ~ 40°C

Coating dried ~ 2 min @ 52°C over

UV cure 0.065 J/cm² - 3 passes - on glass plateResults:

Both coatings had a frothy glass appearance and were durable (difficult to scratch with fingernail)

Submitted to J. Sedita for pencil hardness test, gloss / hazy.

CC0019

RESEARCH / DEVELOPMENT

EASTMAN KODAK COMPANY

Exhibit VI

Date

Problem:

Property of the Eastman Kodak Co.
Tamara Jones

Tamara K. Jones

07/22/2002 07:21 AM

To: Gary A. Rakes/236369/EKC
cc: Mridula Nair/118096/EKC, B M. Houghtaling/622045/EKC, Joseph S. Sedita/620130/EKC,
Subject: recent samples for haze/gloss

From: Tamara K. Jones

Good morning Gary,

I believe Brad dropped a number of samples off to you last week. Below is a table describing those samples for your record.

The samples may be a little soft since they were cured with 0.070 J/cm^2 -only 1 pass. Unless otherwise noted these are 10 micron coatings.

Coating Identification	% Particle	Comments
CC0019-38-A	5% Claytone HT	
CC0019-38-B	10% Claytone HT	
CC0019-38-C	20% Claytone HT	there are 2 letter C coatings - 1 @ 5 microns and the other 10 microns thickness, noted by cc/ft ²
CC0019-38-D	10% Tospearl 145	
CC0019-38-E	20% Tospearl 145	
CC0019-38-F	30% Tospearl 145	
CC0019-38-G	10% Tospearl 240	
CC0019-38-H	20% Tospearl 240	
CC0019-38-I	30 % Tospearl 240	

Signature

Tamara K. Jones

Witness

Margaret Kelley

The foregoing disclosed to me on

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Exhibit VI

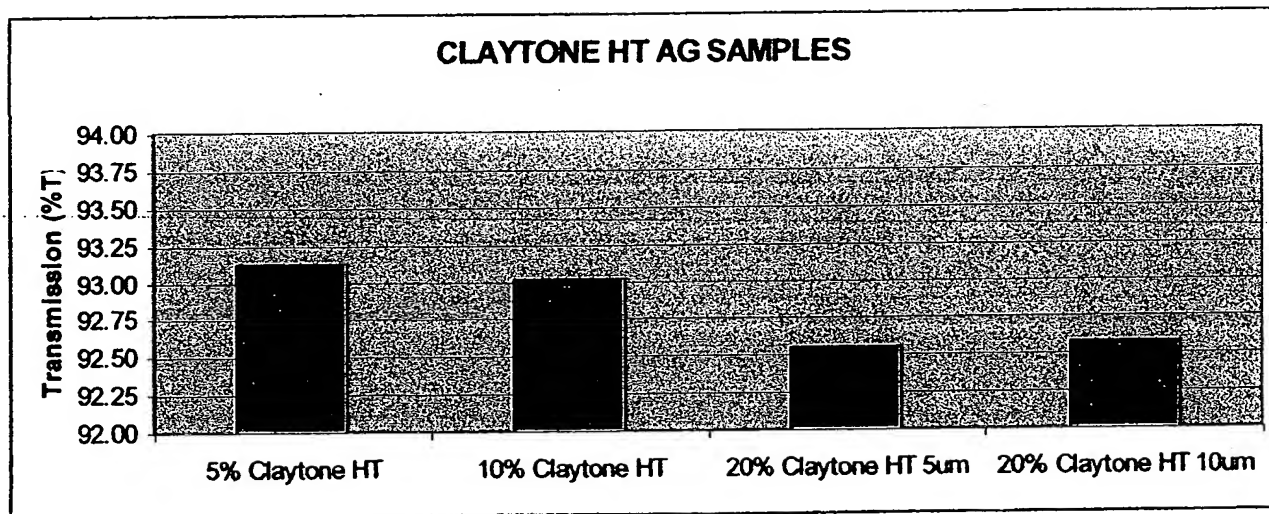
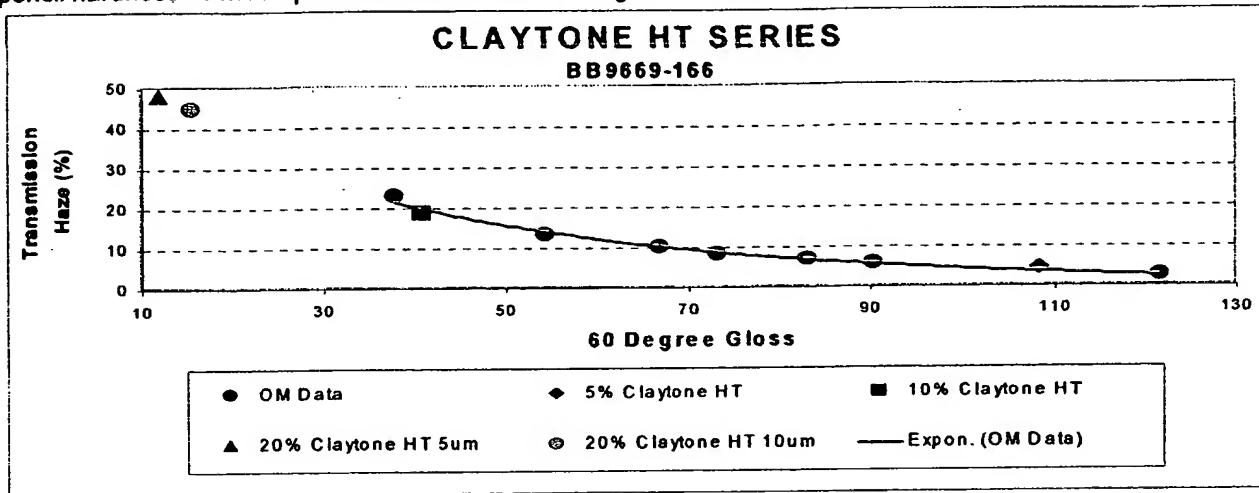
PAGE
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Notebook No. CC0019

Date

Good morning,

Received the optical data from Gary and wanted to share the results. All in all, they look quite good, given the "challenging" surface quality due to the use of toluene. You can see that for 5 and 10%, the results fall within the haze range ($\leq 30\%$) we are looking at and 20wt% simply is too hazy. I did not originally ask for pencil hardness - I will request this of Joe this morning when I talk with him.



from Brad

Tospearl graph p. 54

Signature

Tamara K. Jones

Witness

Margaret Kelley

The foregoing disclosed to me on